

DIRECT ALCOHOL FUEL CELL AND METHOD FOR PRODUCING THE SAME

Examiner: Z. Best S.N. 10/591,176 Art Unit: 1727

DETAILED ACTION

1. Applicant's amendment filed January 19, 2012 was received. Claim 7 was amended. Claims 18-21 were newly added. No new matter was added. Claims 7-8, 15, and 17-21 are currently pending examination.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. The claim rejections under 35 U.S.C. 103(a) of Claims 7-8, 15, and 17 as being unpatentable over Sterzel (US 4,828,941) in view of Jaouen (US 2004/0028992 A1) are withdrawn because independent Claim 7 was amended.
4. Claims 7-8, 15, and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sterzel (US 4,828,941) in view of Reichert et al. (US 2003/0219645 A1, hereinafter "Reichert").

Regarding Claims 7 and 18, Sterzel teaches a direct alcohol fuel cell (abstract) comprising an anode having an anode catalyst layer (2), a cathode having a cathode catalyst

layer (3), and a solid polymer electrolyte membrane arranged between the anode and cathode (1), the direct alcohol fuel cell generating electricity by supplying the anode with alcohol and water (col. 8, lines 5-19); wherein the solid polymer electrolyte membrane is an anion exchange membrane (col. 2, lines 52-55); wherein the cathode catalyst layer contains silver as a catalyst (col. 48-50); and wherein the cathode catalyst layer contains an anion exchange resin coated thereon (c. 5, lines 13-19 and 46-50, see also generally col. 5, lines 1-50, c. 6, ll. 51-55). However, Sterzel fails to teach the catalyst is bound by the anion exchange resin in the cathode catalyst layer.

Reichert teaches a methanol fuel cell (abstract, pars. 2) wherein the catalyst is bound by the exchange polymer in the electrode catalyst layer (par. 33) thereby forming an interface between the catalyst, the ion exchange resin, and the membrane so as to assist in securing the electrode to the membrane (par. 33). Reichert further teaches the ion exchange resin used is compatible with the ion exchange polymer of the membrane (par. 33). Therefore, it would have been obvious at the time the invention was made to use the anion exchange polymer of Sterzel as binder in the catalyst layer because Reichert teaches the catalyst bound by the exchange polymer in the electrode catalyst layer will assist in securing the electrode to the membrane.

Regarding Claims 8 and 19, Sterzel teaches the catalyst includes a carrier catalyst having a carbon material carrying the silver (col. 3, lines 32-50).

Regarding Claims 15 and 20, Sterzel teaches the anion exchange membrane is constituted by a polymer compound having a cation group within a molecule (col. 5, lines 28-42).

Regarding Claims 17 and 21, Sterzel teaches the alcohol is methanol (abstract).

Response to Arguments

5. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action.

In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZACHARY BEST whose telephone number is (571)270-3963. The examiner can normally be reached on Monday to Thursday, 8:30 - 6:00 (Eastern).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571) 272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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